Tennessee Pollution Prevention Partnership Success Story

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Reconstruction Preserves Architecture And Saves Energy

The Member

James H. Quillen VA Medical Center is a tertiary care facility providing a full range of patient care services, with state-of-the-art technology as well as education and research. Comprehensive health care is provided through primary care, tertiary care, and long-term care in areas of medicine, surgery, psychiatry, physical medicine and rehabilitation, neurology, oncology, dentistry, geriatrics, and extended care. In addition to providing acute care, the James H. Quillen VA Medical Center offers geriatric and rehabilitation services through its 120-bed Nursing Home Care Unit. The facility also operates a 348-bed Domiciliary that offers a variety of treatment options, which includes a Homeless Inpatient Treatment Program and Homeless Outreach. James H. Quillen VA Medical Center has an active affiliation with the James H. Quillen College of Medicine at East Tennessee State University. The medical school is housed on the grounds of the VA Medical Center and is utilizing the property through Enhanced-Use Leasing agreement. Over 300 University residents, interns, and students are trained at the James H. Quillen VA Medical Center each year. There are also nursing student affiliations with East Tennessee State University, University of Tennessee, Vanderbilt University and five other nursing schools. There are other major university affiliations with our medical center involving dentistry, pharmacy, social work, and psychology. A U.S. National Cemetery is also located on the grounds of the VA.

The Story

The James H. Quillen VA Medical Center has been challenged to achieve a 15% reduction in overall (individual buildings are not metered) energy consumption from their local steam provider and from the electrical utility. In 2006, the Medical Center completed the renovation of two 1905 structures for use as laboratories and offices. These buildings are 38,136 sq ft each and were taken out of service in the early 1990's due to their physical state that resulted in high-energy operating costs because of heat and cooling loss and the presence of hazardous asbestos insulating materials. The reconstruction constituted reducing the buildings to the brick and steel structure in order to assure airtight systems and total removal of asbestos and lead-based paint when reconstruction was complete. Although built to specification in the early part of last century, the buildings did not have modern wiring, lighting, thermal pane windows, seals, and optimum insulating materials.

The Success

Reconstruction is complete and the Medical Center began reoccupying the buildings in January 2006. With the complete rebuild, the buildings now have new double-pane windows, optimized insulation, increased wall thickness, latest generation low-energy-demand HVAC systems, and energy-efficient lighting with light sensors in intermittent use areas. These buildings in their prior condition would have required 1,489,600 KwH/year but in the renovated state will require only 893,760 KwH/year, which is a 40% savings in energy demand for these buildings, based on 2006 costs.

The Pollution Prevented

These refurbished buildings have been put back on-line with a conscientious effort to reduce the energy required to heat and cool them, making their reuse practical once again. Energy reduction per building is 297,920 KwH/year ($20,330/year) based on savings achieved from the double pane windows, better insulation, HVAC systems, and light sensors. This amount equates to 1,253 tons NOx, 2,440 tons SO_2, and 1,851 tons CO_2 if this energy had to be generated at a coal fired power plant.

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